

REQUEST FOR RECONSIDERATION

Claims 2 and 7-11 remain active in this application.

The claimed invention is directed to a thermoplastic resin suitable for a molding material for an automotive exterior part and provides a thermoplastic resin composition comprising 50-85 wt. % of a reinforced acrylic rubber [A], 3-25 wt. % of a diene rubber [B], 5-40 wt. % of a copolymer of a vinyl monomer having a bonded vinyl content of 30 to 50 mass% [D] and 5-25 wt. % of a copolymer of a vinyl monomer having a bonded vinyl content of less than 30 mass% [E]. Applicants have discovered such a combination to provide for excellent dimensional accuracy of molded articles due to excellent coating property, weather resistance, peeling property and flexibility as well as a small linear expansion coefficient. Such a composition is nowhere disclosed or suggested in the cited art of record.

The rejections of claims 2 and 7-11 under 35 U.S.C. §103(a) over Miyajima et al. and of claims 2, 7 and 9-11 under 35 U.S.C. §103(a) over Kamoshita et al. are respectfully traversed.

None of the cited references disclose or suggest the claimed combination of 50-85 wt. % of [A] a grafted acrylic rubber, 3-25 wt. % of [B] a grafted diene rubber, 5-40 mass% of a copolymer having a bonded vinyl cyanide content of **30 to 50 mass%** [D] **and** 5-25 wt. % of a copolymer of a vinyl monomer having a bonded vinyl cyanide content of **less than 30 mass%** [E].

Miyajima et al. describes a rubber-modified thermoplastic resin comprising 5-99 wt. % of a rubber-modified thermoplastic resin (A) comprising 50-85 wt. % of a rubbery polymer (a) modified with 5-48 wt. % of an aromatic vinyl compound (b) and 2-45 wt. % of a vinyl cyanide compound (c) and 1-95 wt. % of at least “one other thermoplastic resin.” The other thermoplastic resin is described at column 6, lines 35-61 as follows:

The thermoplastic resin (B) is preferably the following a. and b. which are used alone or in combination of two or more:

a. Rubber-modified thermoplastic resins having a rubbery polymer content of less than 50% by weight obtained by polymerizing a monomer mixture consisting of at least two types of monomers selected from the group consisting of **aromatic vinyl compounds, vinyl cyanide compounds**, (meth)acrylic acid esters and maleimide monomers in the presence of a rubbery polymer, in other words, **rubber-modified thermoplastic resins** other than the rubber-modified thermoplastic resin (A) [referred to hereinafter as the rubber-modified thermoplastic resin (C)]. Incidentally, the rubbery polymer and monomers used here may be those mentioned above. Also, the intrinsic viscosity of the methyl ethyl ketone-soluble matter of the rubber-modified thermoplastic resin is preferably 0.2 to 1 dl/g, more preferably 0.3 to 0.6 dl/g, as measured in methyl ethyl ketone at 30° C.

b. Copolymers obtained by polymerizing a monomer mixture consisting of at least two types of monomers selected from the group consisting of aromatic vinyl compounds, vinyl cyanide compounds, (meth)acrylic acid esters and maleimide monomers which copolymers have an intrinsic viscosity of preferably 0.2 to 1.3 dl/g, more preferably 0.3 to 1 dl/g and most preferably 0.35 to 0.7 dl/g as measured in methyl ethyl ketone at 30° C.

Thus, the reference describes using thermoplastic resin which can contain one, two or more polymers any of which could contain a vinyl cyanide compound. There is no disclosure of 5-40 mass% of a copolymer having a bonded vinyl cyanide content of **30 to 50 mass% [D] and 5-25 wt. % of a copolymer of a vinyl monomer having a bonded vinyl cyanide content of less than 30 mass% [E]**.

In contrast, the claimed invention is directed to a thermoplastic resin composition comprising 50-85 wt. % of a reinforced acrylic rubber [A], 3-25 wt. % of a reinforced diene rubber [B], 5-40 wt. % of a copolymer of a vinyl monomer having a bonded vinyl cyanide content of 30 to 50 mass% [D] and 5-25 wt. % of a copolymer of a vinyl monomer having a bonded vinyl cyanide content of less than 30 mass% [E]. Thus, while the reference allows for the presence of copolymers having vinyl cyanide groups, there is no disclosure or suggestion from such **a generic disclosure** of having 5-40 mass% of a copolymer having a bonded vinyl cyanide content of **30 to 50 mass% [D] and 5-25 wt. % of a copolymer of a vinyl monomer having a bonded vinyl cyanide content of less than 30 mass% [E]**.

Applicants have discovered an enhanced performance evaluation resulting from 5-25 mass% of vinyl aromatic with less than 30 mass% of vinyl cyanide.

The examiner's attention is directed to the data appearing on page 34, Table 1 of applicants' specification in which the performance of various rubber compositions is reported. For the examiners' convenience a portion of the data from Table 1 is reproduced below:

TABLE 1

		Example			Comparative Example			
		1	2	3	1	2	3	4
Content	Component [A]	Mass %	70	65	70	35	25	45
	Component [B]	Mass %	10	0	10	45	10	15
	Component [D]	Mass %	20	35	10	20	65	0
	Component [E]	Mass %	0	0	10	0	0	47
	Rubber content in composition	Mass %	27	21	27	34	13	22
	Bonded vinyl cyanide content in acetone-soluble fraction	Mass %	33	35	31	33	38	26
Performance Evaluation	Flexural modulus	Units MPa	1780	2130	1750	1310	2590	2090
	Coefficient of linear expansion	×10 ⁻⁵ /° C.	9.0	8.6	9.0	12.6	8.1	11.4
	Coating properties	○	○	○	○	○	X	X
	Peel properties	○	○	○	○	X	X	X

Comparative examples 1-4 all contained either less than 5 mass% or more than 40 mass% of component [E] and all exhibited a decrease in performance of at least one of flexural modulus, coefficient of linear expansion, coating property or peel property.

In particular comparative example 1 had a decreased flexural modulus and increased coefficient of linear expansion when the content of vinyl copolymer having a vinyl cyanide content of less than 30 mass % was 0, below the claimed 5-25 wt. %.

Comparative example 2 had decreased peel properties when the content of vinyl copolymer having a vinyl cyanide content of less than 30 mass % was 0, below the claimed 5-25 wt. %.

Comparative example 3 had increased coefficient of linear expansion, decreased coating and decreased peel properties when the content of vinyl copolymer having a vinyl

claimed 5 wt. % minimum and the content of vinyl copolymer having a vinyl cyanide content of less than 30 mass % was 47 wt. %, in excess of the claimed maximum of 25 wt. %.

In contrast, example 3 in which the content of acrylic rubber was 70 wt.%, the content of diene rubber was 10 wt. %, the content of vinyl copolymer having a vinyl cyanide content of 30-50 mass % was 10 wt. % and the content of vinyl copolymer having a vinyl cyanide content of less than 30 mass % was 10 wt. % demonstrated high flexural modulus and low coefficient of linear expansion which maintaining good coating and peel properties.

Since Miyajima et al fail to describe the claim limitation of 50-85 wt. % of reinforced acrylic rubber and 3-25 wt.% of diene rubber there can be no suggestion of the enhanced performance resulting from such a combination. Further, the claimed invention achieves excellent flexibility, while Miyajima et al. report a high flexural modulus (see Table 2). The technical findings relating to flexibility, coating property, weather resistance, peeling property and dimensional accuracy are not suggested by Miyajima et al. and as such does not suggest the necessity for solving the problems and the technical means for solving the problems of the claimed invention. As such the claimed invention would not have been obvious and withdrawal of the rejection under 35 U.S.C. 103(a) is respectfully requested.

Kamoshita et al. describes a thermoplastic for an internal box of a refrigerator having excellent flow resistance. The composition contains 5-100 wt. % of (A) an acrylic rubber graft copolymer, 0-80 wt. % of (B) a diene rubber graft copolymer and 0-85 wt. % of (C) a vinyl copolymer of **45-75** wt. % vinyl cyanide (column 2, line 56 through column 3, line 5). There is no disclosure or suggestion of a vinyl copolymer having a bonded vinyl cyanide content of less than 30 mass %. By describing their vinyl copolymer as having **45-75** wt. % of vinyl cyanide, there would be no motivation to include a vinyl copolymer in which the bonded vinyl cyanide content was **less than 30 mass%**.

than 30 mass% [E]. By describing their vinyl copolymer as having **45-75** wt. % of vinyl cyanide, there would be no motivation to include 5-40 mass% of a copolymer having a bonded vinyl cyanide content of **30 to 50 mass% [D] and 5-25** wt. % of a copolymer of a vinyl monomer having a bonded vinyl cyanide content of **less than 30 mass% [E].**

In contrast, the claimed invention is directed to a resin composition comprising 5-40 mass% of a copolymer having a bonded vinyl cyanide content of **30 to 50 mass% [D] and 5-25** wt. % of a copolymer of a vinyl monomer having a bonded vinyl cyanide content of **less than 30 mass% [E].**

While the examiner has cited to comparative examples C-4 and C-6 as compositions in which the vinyl cyanide content is below 30 wt. %, applicants note that each of these examples are **comparative** examples which are demonstrated to **provide poor resistance** to strain in an atmosphere of refrigerants and accordingly would not be looked to as a basis to modify any further compositions. To the contrary, the decreased performance of compositions in which the vinyl cyanide content of a copolymer component was <30 wt.% would teach away from using a copolymer comprising 5-40 mass% of a copolymer having a bonded vinyl cyanide content of **30 to 50 mass% [D] and 5-25** wt. % of a copolymer of a vinyl monomer having a bonded vinyl cyanide content of **less than 30 mass% [E].**

The claimed invention achieves the effect of excellent dimensional accuracy of molded articles, due to the excellent coating property, weather resistance, peeling property and flexibility as well as having a small linear expansion coefficient (see page 7-8 of applicants' specification). Kamoshita et al. provides a resin composition capable of forming a refrigerator inner case which is excellent in Freon resistance. Therefore, Kamoshita et al. differs from the claimed invention in terms of the problem solved and therefore can not suggest the effects of the claimed invention. The technical findings relating to flexibility, coating property, weather resistance, peeling property and dimensional accuracy are not

suggested by Kamoshita et al. and as such does not suggest the necessity for solving the problems and the technical means for solving the problems of the claimed invention.

As such the claimed invention would not have been obvious based on this disclosure.

Withdrawal of the rejections under 35 U.S.C. 103(a) is respectfully requested.

The rejection of claim 2 under the judicially created doctrine of obviousness-type double patenting over claims 1-2 of U.S. 5,229,457 is respectfully traversed.

Applicants note that neither **claim 1 or claim 2** of U.S. '457 claims **the limitation of** a vinyl copolymer having a vinyl cyanide content of <30 wt. %. As such, the claimed invention would not have been obvious from either of claim 1 or claim 2 of the patent as the claim limitation of a vinyl cyanide content of <30 wt. % is not disclosed. As the claim limitations do not appear in the claims of U.S. '457 the current claims would not have been obvious over the claims of U.S. '457. While the examiner has cited to the disclosure in U.S. '457 of a vinyl cyanide content of 30% or less, such is not a claim limitation such that the claimed invention would not have been obvious from the claims of U.S. '457. Further, while the examiner notes that the specification may be used to interpret the claims, it is not permitted to import disclosure from the specification, into the claims, in order to support such a rejection. Accordingly, withdrawal of the rejection under the judicially created doctrine of obviousness-type double patenting is respectfully requested.

Applicants submit that this application is now in condition for allowance and early notification of such action is earnestly solicited.

Respectfully submitted,

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